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Title	FINGER-TOUCH TYPE COORDINATE DETECTION PANEL
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SPECIFICATION**1. Title of the Invention**

Finger-Touch Type Coordinate Detection Panel

2. Claim

A finger-touch type coordinate detection panel, characterised in that in a panel construction, in which detection electrodes of a prescribed pattern are arranged on an insulating substrate, and the surface of said detection electrodes is covered with an insulating film, and a touch position is detected from a change in capacitance in the event of a finger-touch: a moisture-absorbing thin film is provided on the finger-touch surface of said insulating film.

3. Detailed Description of the Invention**(a) Technical field of the invention**

The present invention relates to finger-touch type coordinate detection panels.

(b) Background technology

Recently, as a means for inputting multiple items of information, systems have been developed in which a transparent coordinate board is arranged in front of a display screen such as a CRT, and positional information corresponding to information displayed on the display screen can be input from the board after confirming the contents of the display.

(c) Prior art and its drawbacks

Conventionally, such a system employs a finger-touch type coordinate detection panel having the following construction. Namely, linear first electrodes consisting of a transparent indium tin oxide (ITO) layer obtained by adding tin (Sn) to indium oxide (InO₃)

are formed with a prescribed pitch on a transparent glass substrate, and second electrodes orthogonal thereto are formed over these first electrodes with an intermediate dielectric film of a prescribed pattern. Transparent detection electrodes consisting of an ITO layer are formed in the regions demarcated by the first and second electrodes, each of these detection electrodes being split into two portions that are respectively connected to the first and second electrodes.

This panel having transparent detection electrodes in the regions demarcated by the first and second electrodes is operated at a particular fixed frequency, and – depending on whether a transparent detection electrode is contacted by a finger – senses a fluctuation in the output voltage of a transparent detection electrode due to the grounded capacitance of a human body, and thereby detects a coordinate position.

However, detection sensitivity in the coordinate detection panel described above has varied greatly according to whether the fingertip of the person touching the panel is dry or moist. That is to say, a drawback has been that if the person touching the panel has a dry fingertip, the area of contact between the finger and the panel surface is small, the body capacitance is not effectively applied, and the detection sensitivity decreases.

(d) Object of the invention

The present invention has been devised in the light of this drawback of the prior art, and it is an object of the invention to provide a finger-touch type coordinate detection panel with a construction whereby the use of a dry fingertip does not result in a decrease in detection sensitivity.

(e) Constitution of the invention

The present invention achieves this object by providing a finger-touch type coordinate detection panel, characterised in that in a panel construction, in which detection electrodes of a prescribed pattern are arranged on an insulating substrate, and the surface of these detection electrodes is covered with an insulating film, and a touch position is detected from a change in capacitance in the event of a finger-touch: a moisture-absorbing thin film is provided on the finger-touch surface of the insulating film.

(f) Embodiment of the invention

An embodiment of the present invention is described in detail below with reference to the drawings. FIG. 1 is a top plan view of the finger-touch type coordinate detection panel of the present invention. FIG. 2 shows the cross-sectional view at line A–A' in FIG. 1.

As indicated in FIG. 1 and FIG. 2, in the coordinate detection panel of the present invention, first (Y) electrodes 2 consisting of ITO are arranged with a prescribed pitch on transparent glass substrate 1, and second (X) electrodes 4 consisting of ITO are

arranged orthogonally to these Y-electrodes with intermediate first insulating film 3 therebetween. This intermediate first insulating film 3 consists of a borosilicate glass – which is a low dielectric material – and covers the Y-electrodes 2. In addition, second insulating film 7 consisting of a polyurethane based resin is also formed.

Detection electrodes 5 and 6 consisting of ITO and having a prescribed pattern are formed in each region demarcated by the Y-electrodes 2 and the X-electrodes 4, and these detection electrodes 5 and 6 are connected to the Y-electrodes 2 and the X-electrodes 4 respectively.

The construction described above is no different from the construction of a conventional coordinate detection panel. However, a distinguishing feature of the construction of the present invention is that additionally, the aforementioned second insulating film 7 is covered with moisture-absorbing thin film 8.

The surface of a coordinate detection panel (that is to say, the surface of second insulating film 7) conventionally has a high resistivity of around $10^{13} \Omega\text{cm}$, but the moisture-absorbing thin film surface has a resistivity of around 10^8 to $10^{10} \Omega\text{cm}$. Consequently, even if the fingertip of the person touching the panel is dry, the area of contact between fingertip and panel surface is increased and the body capacitance is effectively applied.

The moisture-absorbing thin film 8 described above has been successfully produced as follows: (1) dissolve a surfactant in an alcohol-based solvent and either spray onto the surface of the second insulating film 7 or apply to the surface with an impregnated cloth; (2) dry naturally or heat-treat at 100°C for about 1 hour.

An aliphatic sulphonate or a higher alcohol sulphate ester salt can for example be used as the surfactant.

(g) Effect of the invention

As has been explained in detail above, the finger-touch type coordinate detection panel of the present invention is very effective in that a consistently stable detection sensitivity can be obtained irrespective of whether the fingertip of the person touching the panel is dry or not.

4. Brief Description of the Drawings

FIG. 1 is a top plan view of the finger-touch type coordinate detection panel of the present invention. FIG. 2 is the cross-sectional view at line A–A' in FIG. 1.

The reference numbers in the drawings denote the following: 1... glass substrate, 2... Y-electrode, 3... first insulating film, 4... X-electrode, 5 and 6... detection electrodes, 7... second insulating film, 8... moisture-absorbing thin film.

FIG. 1

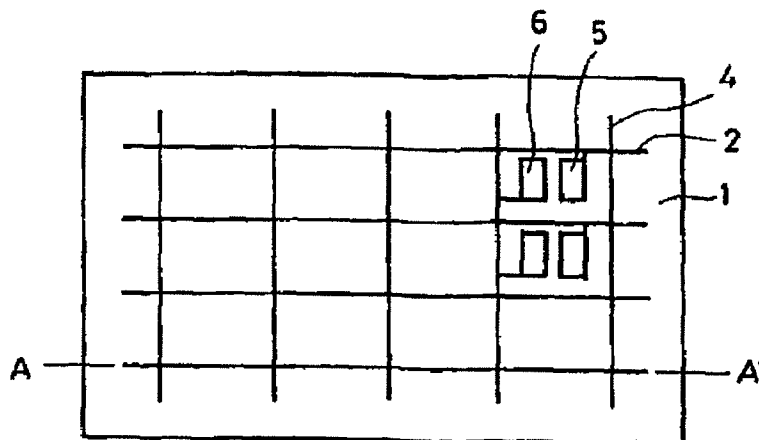


FIG. 2

